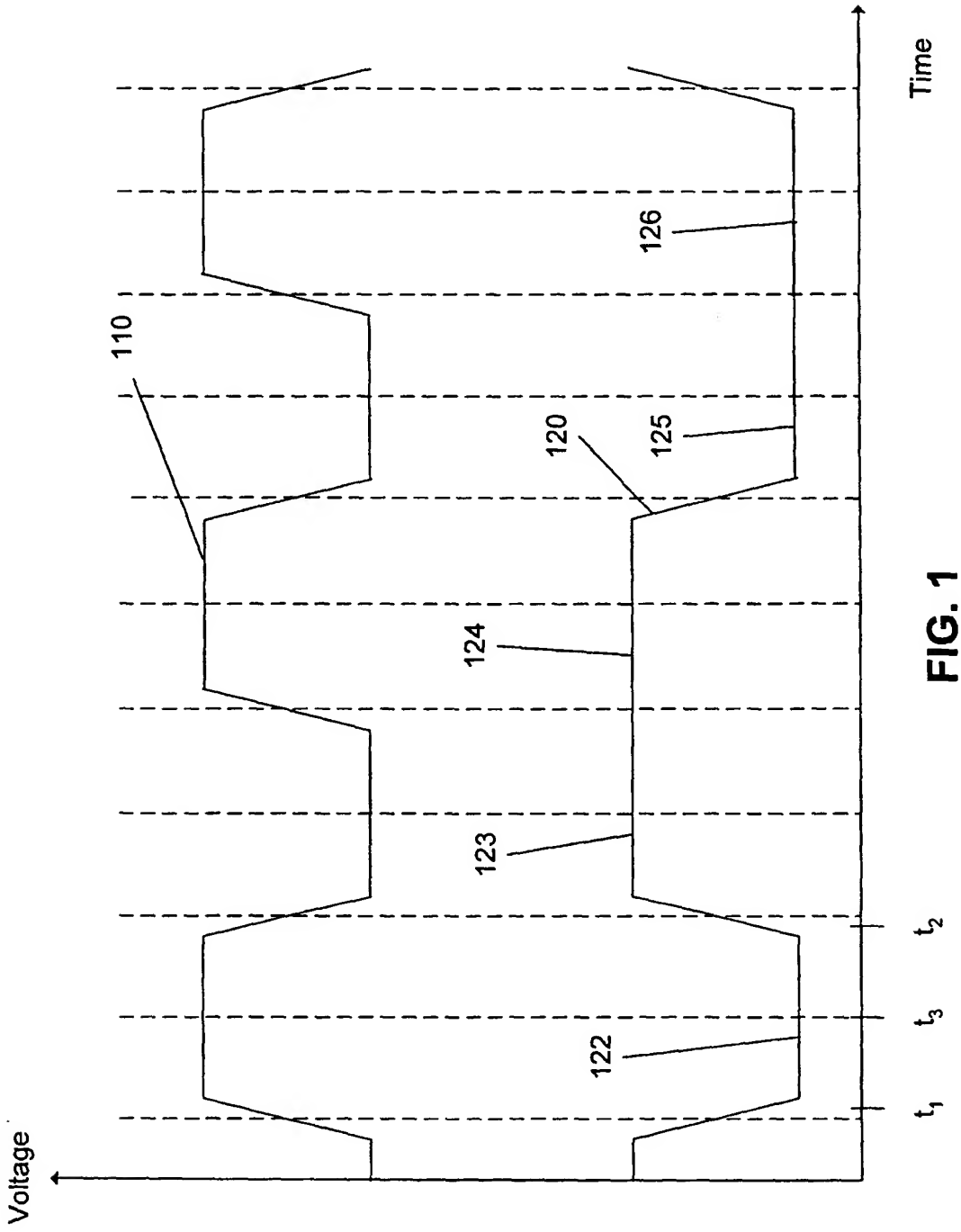
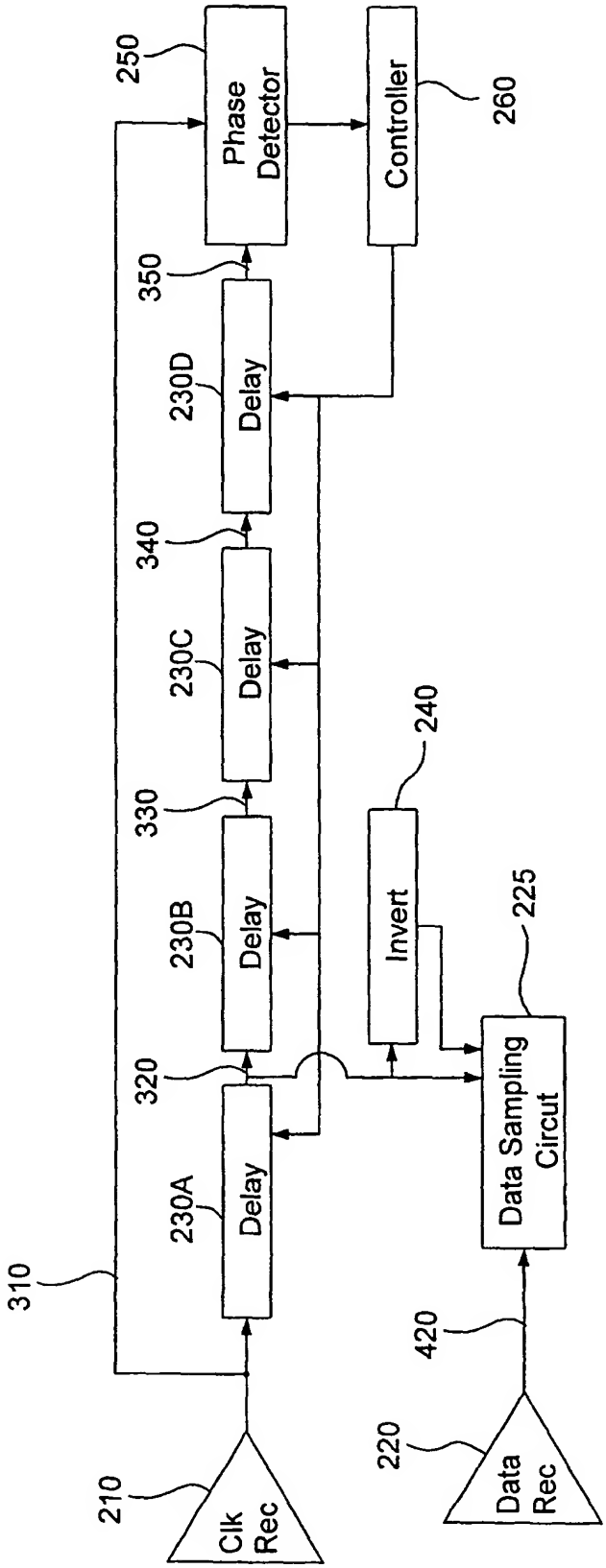



FIG. 1

FIG. 2


250
Phase Detector
Controller
260
350
230D
Delay
340
230C
Delay
330
230B
Delay
320
230A
Delay
240
Invert
225
Data Sampling Circut
310
420
220
Data Rec
210
Clk Rec

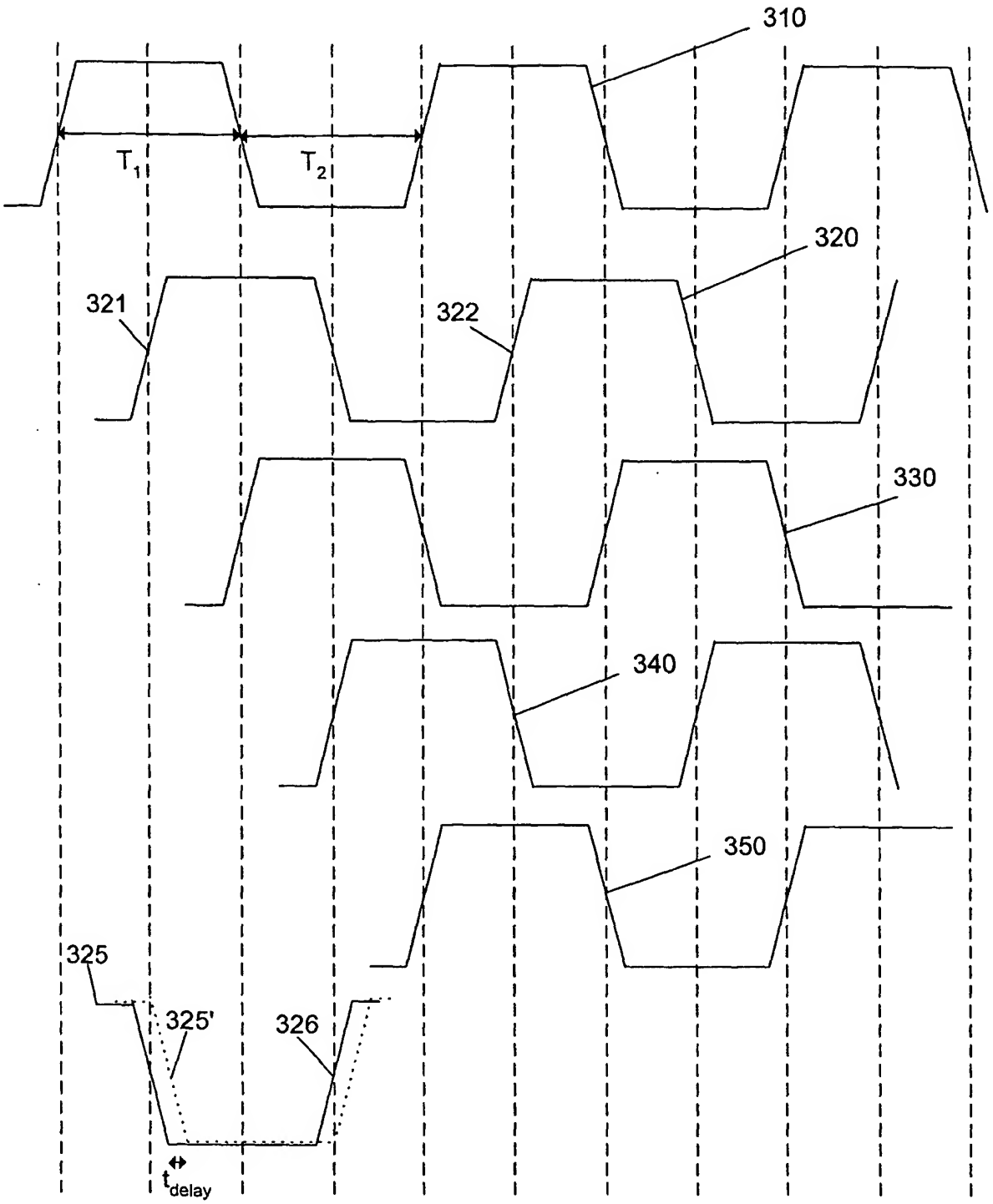



FIG. 3

FIG. 4

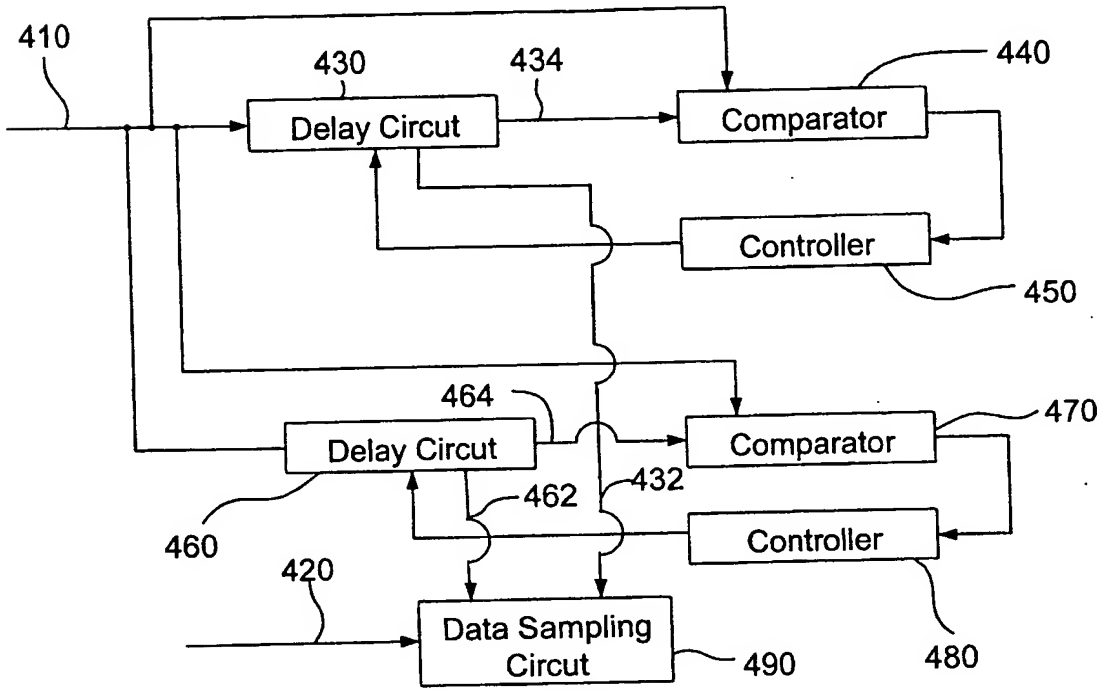
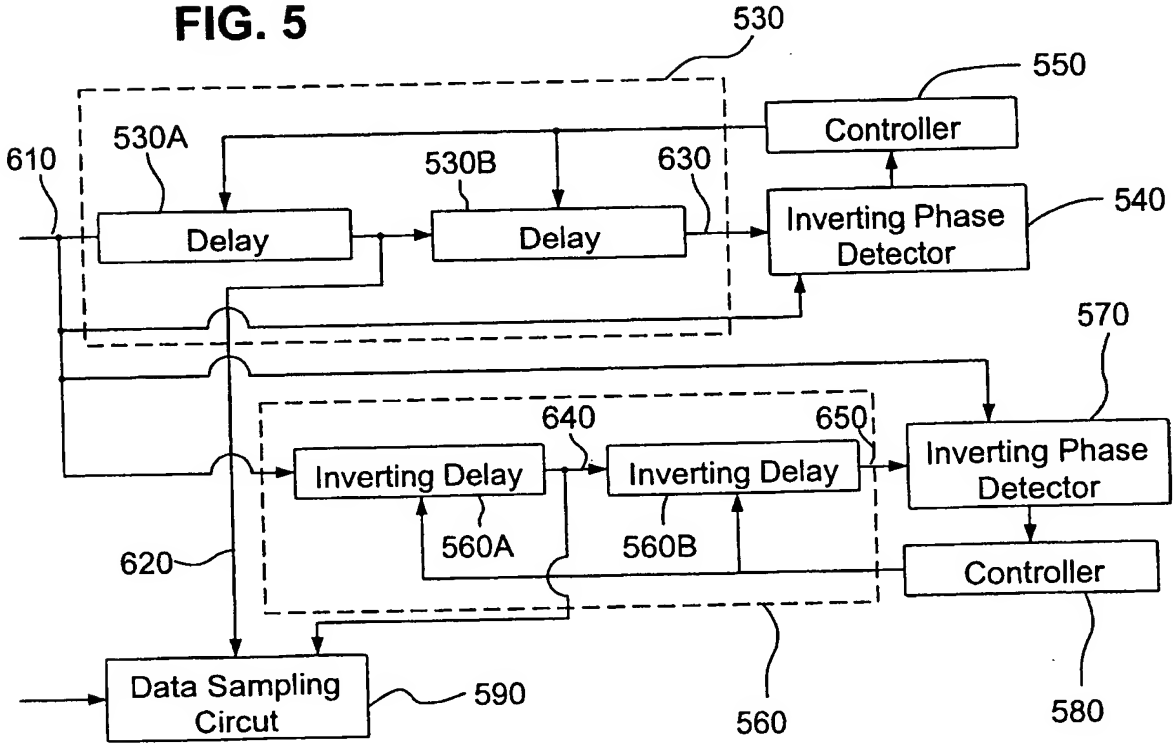

410
430
434
440
Delay Circut
Comparator
Controller
450
464
470
Delay Circut
Comparator
462
432
460
Controller
420
Data Sampling Circut
490
480

FIG. 5


530
550
Controller
530A
610
530B
630
Delay
Delay
Inverting Phase Detector
540
570
640
650
Inverting Delay
Inverting Delay
Inverting Phase Detector
620
560A
560B
Controller
Data Sampling Circut
590
560
580

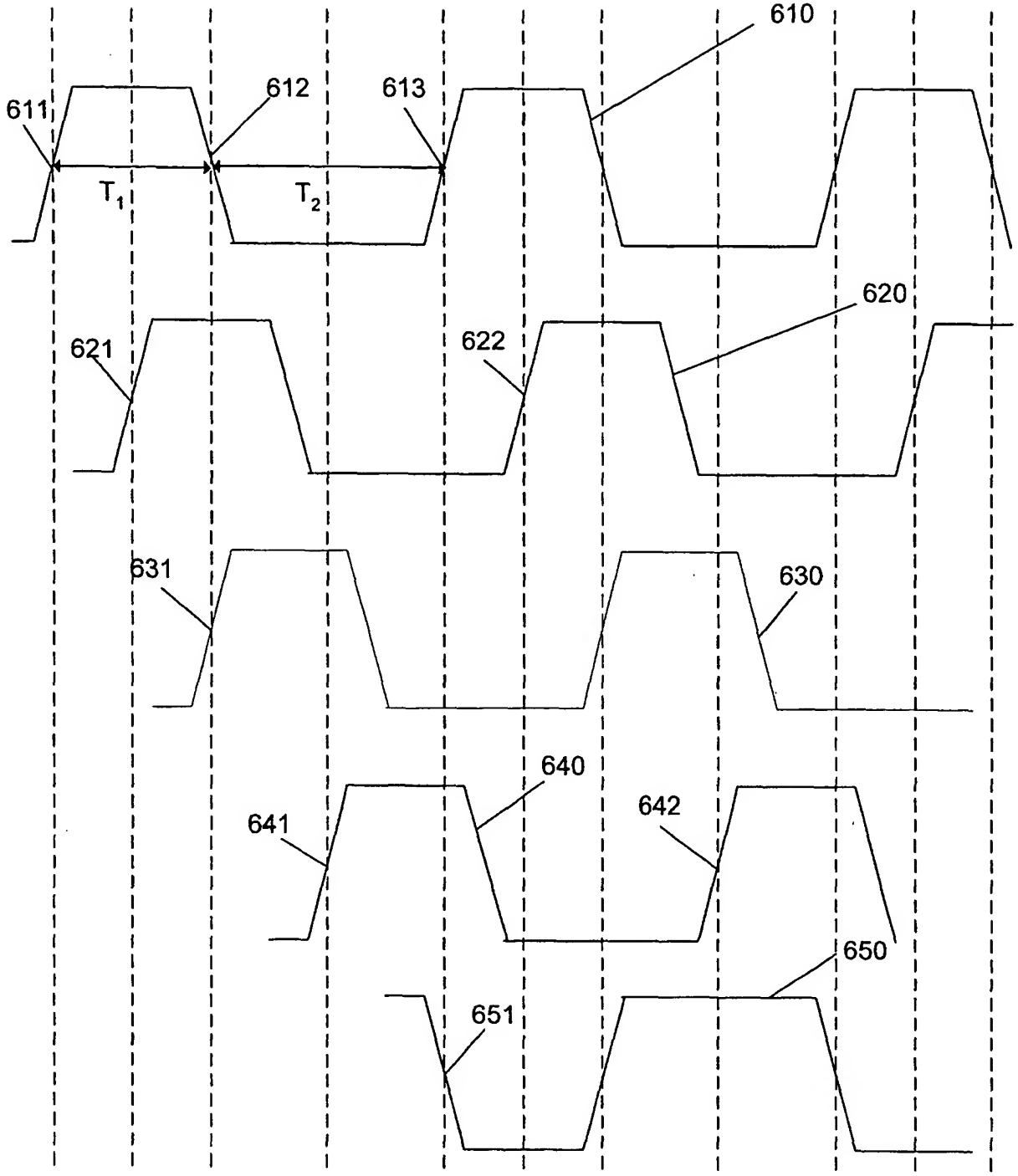
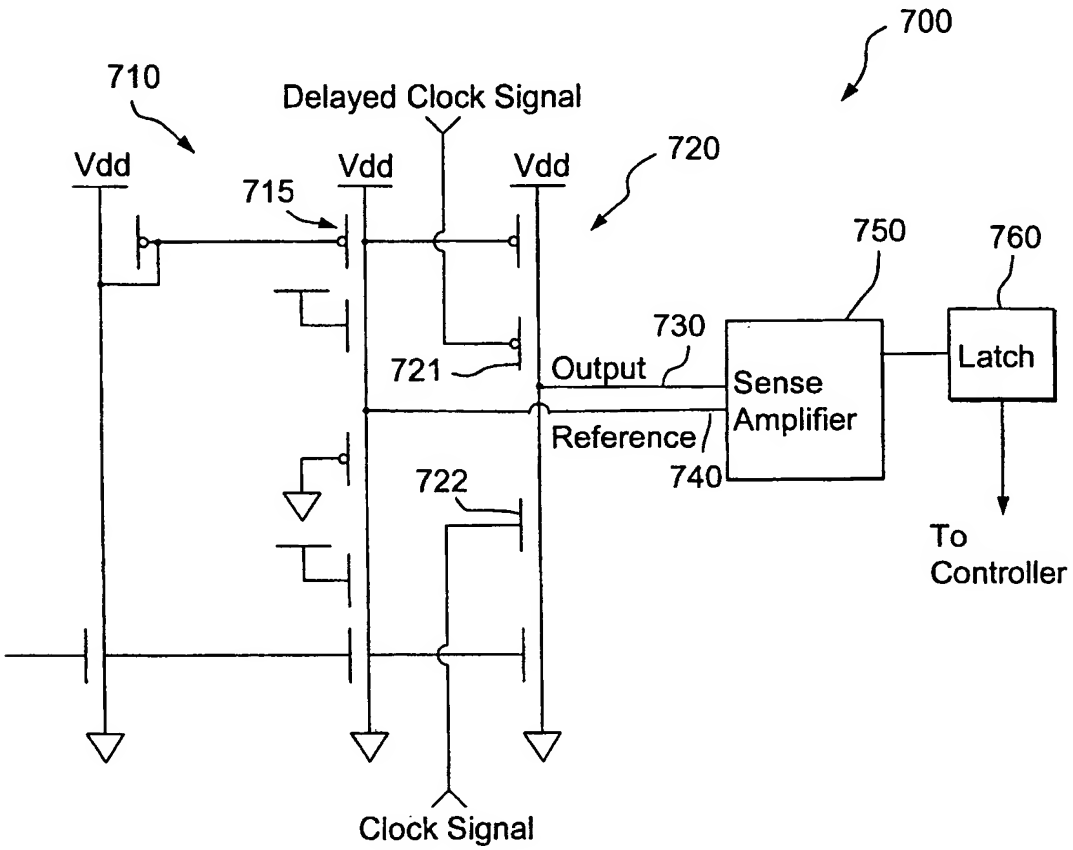



FIG. 6

FIG. 7


700
710
Delayed Clock Signal
720
Vdd
Vdd
Vdd
715
750
760
730
721
Output
Sense
Amplifier
Latch
Reference
740
722
To
Controller
Clock Signal